placed 45° apart. Each leg is bolted to the foundation. Details of the support legs for tank T-20 are shown in drawing #D-51184.

E-2.2.5 Engineering Specification - Foundation

Tanks T-1 through T-6 are located on a one foot four inch (1' 4") thick reinforced concrete pad. The pad is supported by a layer of crushed stone with a minimum thickness of one foot (1') mechanically compacted into six inch (6") layers. The following drawings (located in Attachment I) detail the foundation:

A-56307
A-56308
A-56309
A-56310

Tank T-20 is supported by an eighteen inch (18") thick reinforced concrete pad and a six inch (6") layer of crushed stone (mechanically compacted). The following drawings (located in Attachment I) provide foundation details:

A-11-22044
A-11-22021

E-2.2.6 Actual Tank Thickness

Actual tank thickness measurements for each of the tanks at the incinerator, as of 11/14/91 are attached in the Appendices E-VI and E-VII.

E-2.2.7 Secondary Containment

Tanks T1 through T6 are contained in a common spill containment area adjacent to the Incinerator Unloading Pad. The dike is capable of holding over one hundred and fifty percent (150%) of the volume of the largest tank plus the precipitation volume from a twenty-five (25) year twenty-four (24) hour storm. Containment calculations are provided in Appendix E-VII. Tank T-20 is contained in a spill containment area which includes to the T-20 Trailer Pad. This area will contain over one hundred and fifty percent (150%) of the volume of the tank plus tank trailer, and the precipitation volume from a twenty-five (25) year twenty-four (24) hour storm. Containment calculations are provided in Appendix E-VII.

E-2.2.8 Buffer Zone Requirements

Table E-2 (referenced in Section E-1) shows compliance with NFPA requirements for the minimum distance to property lines/public right of way for all of the storage tanks.

E-2.3 CORROSION

The seven (7) tanks located at the incinerator site have been constructed of materials which, through previous process knowledge, are known to perform well under the conditions of chemical

TABLE E-4 - Materials of Construction

TANK NUMBER	CAPACITY (GAL)	MATERIALS OF CONSTRUCTION	MINIMUM THICKNESS SHELL/HEADS (IN.)
1	5,000	Carbon Steel (SA-285c)	0.13 / 0.23
2	5,000	Carbon Steel (SA-285c)	0.13 / 0.23
3	5,000	Carbon Steel (SA-285c)	0.13 / 0.23
4	10,000	Carbon Steel (SA-285c)	0.17 / 0.30
5	10,000	Carbon Steel (SA-285c)	0.17 / 0.30
6	10,000	Carbon Steel (SA-285c)	0.17 / 0.30
20	20,000	Carbon Steel (SA-516) Grade 70	0.17/ 0.24

exposure. Materials of construction for each of the tanks is listed in Table E-4. Though tank materials were selected on the basis of known compatibility with the materials handled, further tests to screen the residues for classification as corrosives were conducted per methods found in SW-846 and have verified (mild steel) design. The results of these tests are attached in Appendix E-II.

The plant has a corrosion engineering group which performs the tank inspections for the plant. See Attachment B, Section B-1.2 for tank inspection schedules.

E-2.4 TANK MANAGEMENT PRACTICES

E-2.4.1 General

All seven tanks are batch filled from tank trailers by centrifugal loading pumps. Each tank has its own dedicated filling pump with the exception of storage tanks T2 and T3 which share a common pump.

The operator checks the liquid level in the storage tank from either the panel or field mounted indicator to be sure it can receive the entire contents of the tank trailer as indicated on the trailer manifest. Should the tank level exceed ninety percent (90%) of scale an alarm will sound indicating to the operator to cease trailer unloading. Furthermore, in the event the tank does overflow, the liquid path will be through a vent line and/or rupture disc line, both of which terminate in the diked spill control area. The spill control area has a sump for collection purposes. The organic material collected will be circulated back to the waste storages. Any aqueous phase can be treated at the carbon treatment facility.

Please refer to engineering flowsheet A-55119 (Shts. 4, 5, 6, and 6A) located in Attachment I for piping and instrumentation details.

E-2.4.2 Instrumentation

All tanks are equipped with level indication and a pressure control loop. Also tank T-20 has an externally mounted steam heater.

a. Level

Each tank is equipped with a differential pressure operated liquid level transmitter. The cell diaphragm is constructed of Hastelloy C for corrosion resistance. The level in the tank can be read at the control panel. An alarm is sounded if the liquid level in any tank falls below ten percent (10%) or rises above ninety percent (90%) of capacity. Additionally each tank has a separate level probe mounted in a top tank flange that shuts down the waste unloading pump associated with each tank when a high level condition is detected.

b. Pressure Control System

Each tank is equipped with an inert gas (nitrogen) padding system. Inert gas is fed into the tank through a control valve whose signal is received from a Pressure Indicating Controller. Pressure on the storage tank is relieved through a different control valve which is controlled by a separate pressure indicating controller. The pressure at which the tanks are operated is approximately 20" - 60 " H_2O.

c. Temperature Control

Storage tank T-20 is equipped with an externally mounted steam heater. The steam heater, located in the circulating lines near the T-20 storage tank, is a shell and tube heat exchanger. The steam is fed to the shell side of the heat exchanger through a temperature control valve. Organic liquids pass through the tubes of the heat exchanger. A temperature transmitter relays a signal to a temperature indicating controller, which in turn controls the flow of steam to the heat exchanger by opening and closing the temperature control valve in the steam feed line. A high temperature alarm and interlock prevent overheating of the contents of T-20.

d. Safety Devices

Each vessel is equipped with a rupture disc which upon rupturing, relieves to the atmosphere approximately one foot above the spill containment area floor.

Rupture disc details for tanks T-2 through T-5 are as follows:

4" BS & B Type AV
7-10 psig bursting range
Ni-TFE-Ni Construction

Rupture disc details for tanks T-1, T-6, and T-20 are as follows:

T-1: 4" ZOOK
Bursting Range - 2 psig @ 72 ^{o}F
Graphite Construction

T-6: 6" BS & B
Bursting Range - 9.72 psig @ 72 ^{o}F
Graphite Construction

T-20: 4" BS & B
Bursting Range - 23.5 psig @ 72 ^{o}F,
22.5 psig @ 213 ^{o}F
Mon-TFE-Mon Construction

In addition to the rupture discs, tanks T-1 through T-6 are each equipped with a vacuum breaker to prevent tank collapse in the event that the primary inert gas padding system fails. Storage tank T-20 is designed for full vacuum to prevent tank collapse in the event the primary inert gas padding fails

Vacuum breaker details: -2" Groth Model VB-4000-FIV
TFE Body W/TFE encapsulated spring
Differential Cracking Pressure - 1-1/2 psi

E-2.4.3 Carbon Canister Vent System

Volatile organic emissions are controlled by using a control device through a close-vent system. For those tanks which use carbon canisters, the purpose is to absorb tank emissions expelled by either ambient temperature increases or tank filling. When the pressure begins to build in the tanks, the outlet vent valve opens and permits flow of the vapors to the canisters. The organic and acid gas vapors are absorbed in the carbon while the vents (nitrogen) pass through into the atmosphere, When the carbon is spent, the entire canister may be simply replaced in kind, or the carbon in the canister may be replaced. The spent carbon is removed for proper disposal.

All tanks associated with the incinerator are connected to the carbon canister system. The portable scrubber is designed to remove up to 1,000 ppmv of acid gases from the trailers and storage tanks. The unit consists of a 150 gallon FRP storage tank, pump, fan and two ejectors to draw an inlet draft of 5.0 inches WC at 200 cfm. The unit is only used when required (infrequently). The frequency that the carbon canisters are changed is variable and cannot be provided. The discharge from the canisters is monitored monthly for organic vapors. If the organic vapor concentration is greater than 50 ppm, then the canister is replaced.

E-2.4.4 Ignition Prevention

Each tank has two (2) features which protects them from sources of ignition: 1) they are grounded and 2) nitrogen padded. Furthermore, no tank is allowed to store "flammable" mixtures.

In the special case where tanks T-2 and T-3, on occasion, accept a flammable material (Lab CS, Solvent), the material is blended with fuel oil, orthochlorotoluene or Dechlorane Plus Residue to specifically elevate the flash point of the mixture above 100 °F.

E-2.4.5 Tank Inspection

Please refer to Attachment B, Section B-1.2 for general and specific tank inspection details. For inspection and monitoring of fugitive emissions, refer to section 1.2.9 - Leak Detection and Repair, and Appendix B-VII - Leak Detection and Repair Plan. For inspection and monitoring of air emissions from tanks, refer to Appendix B-VIII.

E-2.4.6 Waste Incompatibility

If wastes are to be blended in a storage tank, the compatibility test is performed as part of the waste analysis as described in procedures referenced in Table A1-5, Table A1-6, Appendix A1-II, and Section A2-1.1.2 of the Waste Analysis Plan. If the wastes are found not to be compatible, this will be documented in the operating record and those wastes will not be blended.

APPENDIX E-I

HAZARDOUS WASTE STORAGE TANKS

HAZARDOUS WASTE STORAGE TANKS

(Refer to Map 1)

Tank # and Location	Nominal Size (Gals)	Typical Contents	Purpose	Final Destination	Typical OCC Waste Code	EPA Hazardous Waste Numbers*
T-1 Incinerator U-87	5,000	Benzotrichloride Residue Benzoyl Chloride Residue 3,5-Dichlorobenzoyl Chloride M-22 Building Residue Blend OCBC OCBAC Fuel Oil	Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44, RB-45, RB-46, RB-46F, RB-46T, RB-46N, RB-47, RB-49, RB-51, RB-52, RB-53, RB-54, RB-55, RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68 RB-80	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130
T-2 Incinerator U-87	5,000	Monochlorotoluene Residue Contaminated Orthochlorotoluene Dechlorane Plus Residue Parachlorobenzotrifluoride Residue Works Laboratory CS2 Waste Works Laboratory Burnable Organics 3,4-DCBTF Still Bottoms Fuel Oil	Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44, RB-45, RB-46, RB-46F, RB-46T, RB-46N, RB-47, RB-49, RB-51, RB-52, RB-53, RB-54, RB-55, RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68 RB-80	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130
T-3 Incinerator U-87	5,000	Monochlorotoluene Residue Contaminated Orthochlorotoluene Dechlorane Plus Residue Works Laboratory CS2 Waste Works Laboratory Burnable Organics Fuel Oil	Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44, RB-45, RB-46, RB-46F, RB-46T, RB-46N, RB-47, RB-49, RB-51, RB-52, RB-53, RB-54, RB-55, RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68 RB-80	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130

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HAZARDOUS WASTE STORAGE TANKS
(Refer to Map 1)

Tank # and Location	Nominal Size (Gals)	Typical Contents	Purpose	Final Destination	Typical OCC Waste Code	EPA Hazardous Waste Numbers*
T-4 Incinerator U-87	10,000	Monochlorotoluene Residue Contaminated Orthochlorotoluene Monochlorotoluene Residue Parachlorobenzotrifluoride Residue Works Laboratory Burnable Organics Hyde Park NAPL Taft Waste S-Area NAPL 102nd Street NAPL Niagara Plant NAPL Durez Plant NAPL Love Canal NAPL Fuel Oil	Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44, RB-45, RB-46, RB-46F, RB-46T, RB-46N, RB-47, RB-49, RB-51, RB-52, RB-53, RB-54, RB-55, RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68 RB-80	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209 U210, U211, U220, U228, U239, U130
T-5 Incinerator U-87	10,000	Fuel Oil	Fuel Oil Tank for Incinerator OR Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44, RB-45, RB-46, RB-46F, RB-46T, RB-46N, RB-47, RB-49, RB-51, RB-52, RB-53, RB-54, RB-55 RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68 RB-60	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130
T-6 Incinerator U-87	10,000	Benzotrifluoride Residue Contaminated Orthochlorotoluene Monochlorotoluene Residue Parachlorobenzotrifluoride Residue Energy Blvd Organic Hyde Park NAPL Taft NAPL S-Area NAPL 3,4 Dichlorobenzotrifluoride Still Bottoms 102nd Street NAPL Niagara Plant NAPL Durez Plant NAPL Love Canal NAPL Fuel Oil	Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44, RB-45, RB-46, RB-46F, RB-46N, RB-46T, RB-47, RB-40, RB-51, RB-52, RB-53, RB-54, RB-55, RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68 RB-80	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130

HAZARDOUS WASTE STORAGE TANKS
(Refer to Map 1)

Tank # and Location	Nominal Size (Gals)	Typical Contents	Purpose	Final Destination	Typical OCC Waste Code	EPA Hazardous Waste Numbers*
T-8 Near Bldg N-6	4,500	Contaminated Orthochlorotoluene Monochlorotoluene Residue Dichlorotoluene	Process and Residue Storage Tank	Incinerated On-site	RB-01, RB-05, RB-25, RB-52	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032 D033, D034, D035, D039, D040, F001 F002, F003, F005, F020, F039, K015 K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130
T-9 Near M-22	5,000	Benzotrichloride Residue 3,5-Dichlorobenzoyl Chloride M-22 Building Residue Blend	Process Residue Storage Tank	Incinerated On-site	RB-01, RB-07, RB-25, RB-29, RB-37, RB-60 RB-57, RB-67	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130
T-19 M-22 Inside	2,000	Dechlorane Plus Residue	Process Residue Storage Tank	Incinerated On-site	RB-01, RB-10	B001, B002, B003, D001, D002, D003, D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032, D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130
T-20 Incinerator U-87	20,000	Contaminated Orthochlorotoluene Energy Blvd Organic Hyde Park NAPL Taft NAPL S-Area NAPL 102nd Street NAPL Niagara Plant NAPL Durez Plant NAPL Love Canal NAPL Durez Distillate Fuel Oil	Feed Tank for Incinerator	Incinerated On-site	RB-01, RB-05, RB-06, RB-07, RB-07N, RB-10, RB-11N, RB-11LD, RB-12, RB-12B, RB-14, RB-16, RB-24, RB-25, RB-29, RB-31, RB-34, RB-35, RB-37, RB-39, RB-40, RB-41, RB-43, RB-44 RB-45, RB-46, RB-46F, RB-46N, RB-46T, RB-47, RB-49, RB-51, RB-52, RB-53, RB-54, RB-55, RB-56, RB-60, RB-62, RB-63, RB-64, RB-65, RB-66, RB-67, RB-68, RB-80	B001, B002, B003, D001, D002, D003 D004, D006, D008, D018, D019, D021, D022, D026, D027, D028, D029, D032 D033, D034, D035, D039, D040, F001, F002, F003, F005, F020, F039, K015, K073, K085, K149, K150, K151, P022, U017, U019, U023, U037, U070, U071, U072, U128, U131, U188, U207, U209, U210, U211, U220, U228, U239, U130

Note: *Codes are those permitted. Additional waste codes may apply and will be added dependent on new waste generated upon NYSDEC notification and approval.
OCC waste codes RB-43, RB-57, RB-62, RB-64, RB-65, RB-66, RB-67, and RB-68 are not currently permitted but are pending NYSDEC Approval.

APPENDIX E-II

CORROSION TESTS

Occidental Chemical

Materials Engineering Laboratory

Central Engineering

To: W Manijak

From: R P Tracy

Date: February 9, 1983

cc: P M Caro, K Carlson, M A Spring, J J Czapla, J Popkey, D Skelly, ABM, RPT/File

Subject: Corrosion Testing of Materials in Residue Reactor Tank Farm For RCRA Part "B" Permit
REA No. 806-82513-541 Progress Report

The corrosion rates of the sixteen (16) residues supplied are listed in the attached Table No. I. The tests were run for 24 hours using Method 1110[1] based on NACE[2] TM-01-69. The tests are continuing for 30 days to provide more accurate information and samples are now being exposed at the L/V interface and in the vapor phase in addition to the liquid phase.

Only one (1) of the sixteen (16) materials is classified as corrosive (corrodes steel at a rate >6.35 MM/year) as defined in Method 1110.

All data has been entered in a laboratory notebook and is available for review.

Robert P Tracy
NACE Accrediated
Senior Corrosion Technologist
Accrediation No. 1232

[1]Attached memo W Manijak to A B Misercola 11-17-82

[2]National Association of Corrosion Engineers

RPT:pst
attch.

E 031

Table No. I - REA No. 806-82513-541

Corrosion Testing of Materials in Residue Reactor Tank Farm For RCRA Part "B" Permit

Method: Method 1110[1] Based On NACE[2] TM-01-69

Duration: 24 hours Phase: Liquid Temperature: 55°C

Material Tested: AISI 1020 Mild Steel (Certified by Mill Test Reports)

	Corrodent ID	Description	Corrosion Rate MM/Year[3]	P=Passes[4] F=Fails	Visual Observations[5]
1.	RB09	BOC	0.042	P	No apparent attack
2.	RB10	Dech Plus	4.495	P	Pit initiation
3.	RB01,02	OCT N-Area	0.007	P	No apparent attack
4.	RB05,22	MCT, F-41	2.989	P	Pit initiation
5.	RB11	N-7 Catchall(PCBTC)	0.031	P	No apparent attack
6.	RB12	PCBTF Still Residue	0.066	P	No apparent attack
7.	RB16	API Separator	1.782	P	Surface etch
8.	RB20	Lab CS_2 Waste	2.068	P	Pit initiation
9.	RB20	2% CS_2 Waste in OCT	0.092	P	No apparent attack
10.	RB09b	D-21 Benzoyl Still	0.087	P	No apparent attack
11.	RB25II	MCT M.L.	1.710	P	No apparent attack
12.	RB31	Lab Organic Burn	27.370	F	Heavy general corrosion
13.	RB09a	BTC Still Residue(Foreshot)	0.075	P	No apparent attack
14.	RB09c	3,5-DCBOC Still	0.058	P	No apparent attack
15.	RB09d	3,5-DCBOC Catchall	0.767	P	No apparent attack
16.	RB10	Dech Plus(from K.O. Pot)	0.253	P	No apparent attack

[1]Attached to memo W Manijak to A B Misercola 11-17-82

[2]National Association of Corrosion Engineers

[3]Average 2 results

[4]Method 1110 defines corrosive as a liquid which corrodes steel at a rate >6.35 MM/Year

[5]Microscopic examination 30X

E 032

Occidental Chemical

Materials Engineering Laboratory

Central Engineering

To: W Manijak

Date: March 16, 1983

From: R P Tracy

cc: P M Caro, K Carlson, M A Spring, J J Czapla, J Popkey, D Skelly, A B Misercola, R P Tracy/File

Subject: Corrosion Testing of Materials in Residue Reactor Tank Farm For RCRA Part "B" Permit: REA No. 806-82153-541

The corrosion rates of the sixteen (16) residues supplied are listed in the attached Table No. I. The tests were run for 30 days using Method 1110[1] based on NACE[2] TM-01-69.

All data has been entered in a laboratory notebook and is available for review.

Robert P Tracy
NACE Accrediated
Senior Corrosion Technologist
Accrediation No. 1232

[1]Attached memo W Manijak to A B Misercola 11/17/82.

[2]National Association of Corrosion Engineers.

RPT:pst

attch.

REA No. 806-82513-541

Table No. I - Specifications

Duration: 30 days (720 hours)

Corrodents:

	Identification	Description
1)	RB 09	BOC
2)	RB 10	Dech Plus
3)	RB 01,02	OCT N-Area
4)	RB 05,22	MCT, F-4L
5)	RB 11	N-7 Catchall (PCBTC)
6)	RB 12	PCBTF Still Residue
7)	RB 16	API Separator
8)	RB 20	Lab CS_2 Waste
9)	RB 20	2% CS_2 Waste in OCT
10)	RB 09b	O-21 Benzoyl Still
11)	RB 25H	MCT Catalyst M.L.
12)	RB 31	Lab Organic Burn
13)	RB 09a	BTC Still Residue (Foreshot)
14)	RB 09c	3,5-DCBOC Still
15)	RB 09d	3,5-DCBOC Catchall
16)	RB 10	Dech Plus (from K.O. Pot)

Method: Method 1110[1] based on NACE[2] TM-01-69

Temperature: 55°C

Phase: Liquid, Vapor and Liquid/Vapor Phases

Material Tested: AISI Mild Steel (Certified by Mill Test Reports)

[1]Attached to memo W Manijak to A B Misercola, 11/17/82.

[2]National Association of Corrosion Engineers.

REA No. 806-82513-541

Table No. II - Results (30 day testing)

Corrodent	Phase	Corrosion Rate (mm/yr)	Corrosion Rate (mils/yr)	Visual Observations**
1. RB 09	L*	0.0090	0.4	No apparent attack
	V	0.0080	0.3	No apparent attack
	L/V	0.0122	0.5	No apparent attack
2. RB 10	L*	0.0691	2.7	General corrosion; pits in stress areas (6 mils)
	V	0.3313	12.9	Heavy general corrosion; pits 2-3 mils
	L/V	0.3409	13.3	Heavy general corrosion; pits 2-3 mils
3. RB 01,02	L*	0.0042	0.2	No apparent attack
	V	0.0089	0.3	No apparent attack
	L/V	0.0067	0.3	No apparent attack
4. RB 05,22	L*	0.2914	11.4	General corrosion; pitting 1-2 mils deep
	V	0.0383	9.3	General corrosion; pitting 3-4 mils deep
	L/V	0.1492	5.8	Preferential attack at L/V interface 20 mils deep
5. RB 11	L*	0.0070	0.3	No apparent attack
	V	0.0200	0.8	No apparent attack
	L/V	0.0113	0.4	No apparent attack
6. RB 12	L*	0.0186	0.7	No apparent attack
	V	0.0064	0.2	No apparent attack
	L/V	0.0191	0.7	No apparent attack
7. RB 16	L*	0.6974	27.2	General surface etch
	V	0.1504	5.9	General corrosion; pitting 2.0 mils deep
	L/V	0.1728	6.7	Pitting in vapor phase 2.0 mils de
8. RB 20	L*	0.8396	32.7	Heavy general corrosion; pitting 10.0 mils deep
	V	0.3855	15.0	Scattered pitting 6.0 mils deep
	L/V	1.0031	39.1	Pitting in Liquid and Vapor up to 10.0 mils deep
9. RB 20	L*	0.0107	0.4	No apparent attack
	V	0.0173	0.7	No apparent attack
	L/V	0.0126	0.5	No apparent attack
10. RB 09b	L*	0.0057	0.2	No apparent attack
	V	0.0134	0.5	No apparent attack
	L/V	0.0061	0.2	No apparent attack

Table No. II - Page 2

Corrodent	Phase	Corrosion Rate (mm/yr)	Corrosion Rate (mils/yr)	Visual Observations**
11. RB 25H	L*	0.0588	2.3	Evidence of slight pitting
	V	0.3083	12.0	Evidence of slight pitting
	L/V	0.0867	3.4	Evidence of slight pitting in liquid & vapor
12. RB 31	L*	3.7355	145.7	Heavy general corrosion; pitting perforated specimens
	V	0.4742	18.5	Hevay general corrosion; pitting 6.0 mils deep
	L/V	1.7101	66.7	Heavy general corrosion & pitting up to 40.0 mils deep
13. RB 09a	L*	0.0043	0.2	No apparent attack
	V	0.0086	0.3	No apparent attack
	L/V	0.0044	0.2	No apparent attack
14. RB 09c	L*	0.0029	0.1	No apparent attack
	V	0.0048	0.2	No apparent attack
	L/V	0.0037	0.1	No apparent attack
15. RB 09d	L*	0.6369	24.8	General surface etch
	V	0.0142	0.6	No apparent attack
	L/V	0.1611	6.3	L phase-general etch
16. RB 10	L*	0.0116	0.5	No apparent attack
	V	0.0160	0.6	No apparent attack
	L/V	0.0143	0.6	No apparent attack

*Average of two results

**Microscopic examination 30X

L=Liquid Phase; V=Vapor Phase; L/V=Liquid/Vapor Phase.

Table No. 1 - REA No. 806-82513-541

Corrosion Testing of Materials in Residue Reactor Tank Farm For RCRA Part "B" Permit

Method: Method 1110[1] Based On NACE[2] TM-01-69

Duration: 24 hours   Phase: Liquid   Temperature: 55°C

Material Tested: AISI 1020 Mild Steel (Certified by Mill Test Reports)

Corrodent ID		Description	Corrosion Rate MM/Year[3]	P=Passes[4] F=Fails	Visual Observations[5]
1.	RB09	BOC	0.042	P	No apparent attack
2.	RB10	Dech Plus	4.495	P	Pit initiation
3.	RB01,02	OCT N-Area	0.007	P	No apparent attack
4.	RB05,22	MCT, F-41	2.989	P	Pit initiation
5.	RB11	N-7 Catchall(PCBTC)	0.031	P	No apparent attack
6.	RB12	PCBTF Still Residue	0.066	P	No apparent attack
7.	RB16	API Separator	1.782	P	Surface etch
8.	RB20	Lab CS_2 Waste	2.068	P	Pit initiation
9.	RB20	2% CS_2 Waste in OCT	0.092	P	No apparent attack
10.	RB09b	D-21 Benzoyl Still	0.087	P	No apparent attack
11.	RB25II	MCT M.L.	1.710	P	No apparent attack
12.	RB31	Lab Organic Burn	27.370	F	Heavy general corrosion
13.	RB09a	BTC Still Residue(Foreshot)	0.075	P	No apparent attack
14.	RB09c	3,5-DCBOC Still	0.058	P	No apparent attack
15.	RB09d	3,5-DCBOC Catchall	0.767	P	No apparent attack
16.	RB10	Dech Plus(from K.O. Pot)	0.253	P	No apparent attack

[1]Attached to memo W Manijak to A B Misercola 11-17-82

[2]National Association of Corrosion Engineers

[3]Average 2 results

[4]Method 1110 defines corrosive as a liquid which corrodes steel at a rate >6.35 MM/Year

[5]Microscopic examination 30X

E 037

Corrosion Tests - Method 1110 and NACE TM-01-69

Tank #	Residue		Corrosion Test Results (MM/yr[b]) 24 Hour		30 Day
1	BTC Still		0.075		0.0043
	BOC Still		0.087		0.009
	3,5 BOC (Math. Blend)		0.122		0.0609
2	OCT,	(0.007)[a]	0.092	(0.0042)[a]	0.0107
	CS_2 Lab Waste	(2.068)[a]		(0.8396)[a]	
3	Dechlorane Plus		4.495		0.0691
	Pentac		NA		NA
4	MCT		2.989		0.2914
	MCT Catalyst		1.710		0.0588
	Lab Organics (27.37)[a] (Math. blend @ 2% with MCT)		3.476	(3.735)[a]	0.3603
5	OCT		0.007		0.0042
6	PCBTF (& OCT)		0.066		0.0186

An annual thickness testing program will monitor performance of these tanks.

Residue inventories at the incinerator are kept at minimum levels as a general management rule, thus improving the life many times above that predicted by continuous exposure tests. Purging and rinsing equipment with OCT frequently also minimizes corrosive contact.

[a] Pure residue data are shown in parentheses. Mathematical blends are noted in the 24 hour and 30 day columns.

[b] Liquid contact - see full reports attached. Units are millimeters per year.

hooker

MATERIALS ENGINEERING

Laboratory Report

STORAGE #1

To: ~~[illegible] A. Nowacten~~

Copies To: S. A. Geist/EIC
ABM/ME File

Date: January 7, 1982

Reported By: R. Tschip
Materials Engineer

Project No. 81177-541

Approved By: R. P. Tracy
Materials Engineer

Subject: MATERIALS OF CONSTRUCTION (MOC) FOR BENZOYL RESIDUE STORAGE

Conclusions and/or Recommendations:

1. Mild Steel 1018 appears to be suitable for storage of Benzoyl Residue received from M-22 Storage Tank after 31 days exposure.

2. Heresite L-66-X1 was also found to be suitable after 31 days exposure at 120° F in the same corrodent.

3. Heresite P700/L66 tested at ambient temperature had exhibit satisfactory results in the same residue after 31 days.

KEYWORDS: Benzoyl Residue, 1018 M.S., Baked Phenolics
FILE: BENZOYL RESIDUE
RT/cmk
81177/TAN

TABLE NO. I - SPECIFICATIONS

Corrodent: Benzoyl Residue (from M-22 Storage Tank)

Temperature: Ambient and 120° F

Duration: 31 Days

Velocity: Static

Phase: Liquid/Vapor

Materials Tested:

1. 1018 Mild Steel
2. Heresite L-66-X1 - Basic phenol-formaldehyde resin with plasticizer.
3. Heresite P700/L66 - A clear baking type modified phenolic pre-coat primer top coated with clear non-pigmented baked phenolic.

Method:

1. Two coupons (1/2" X 3" X 1/16") of 1018 MS, for each test temperature, were half immersed in 600 ml of corrodent contained in a one liter resin flask equipped with a condenser and heated to the prescribed temperature with a heating mantle.
2. A Heresite L-66-X1 coated steel panel was half immersed in 500 ml of corrodent and tested as in Method 1 above.
3. A Heresite P700/L66 coated test pan and cover was half filled with corrodent, cover sealed and maintained at room temperature during the duration of testing.